



THE AMERICAN RADIO RELAY LEAGUE, INC.

LEADERSHIP OFFICIAL

WISCONSIN

SECTION EMERGENCY COORDINATOR, W9ZAG

APRIL, 1989

- SECTION EMERG. COORDINATOR
- SECTION TRAFFIC MANAGER
- AFFILIATED CLUB COORDINATOR
- BULLETIN MANAGER
- EMERGENCY COORDINATOR
- NET MANAGER
- OO/RFI COORDINATOR
- PUBLIC INFORMATION OFFICER
- STATE GOVERNMENT LIAISON
- TECHNICAL COORDINATOR
- ADVISORY COMMITTEE MEMBER
- NTS OFFICIAL
- QSL BUREAU MANAGER

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ARES SEVERE WEATHER PROCEDURE, CRITERIA, and MESSAGE FORMAT

- A. Unless otherwise indicated by the Weather Service, only one or more of the events in the following criteria are reportable:

<u>Event</u>	<u>Report</u>
1. Tornado on the ground	Tornado
2. Funnel cloud aloft and rotating	Funnel cloud
3. Winds 55mph or higher	High winds
4. Hail, one-half inch or larger	Hail
5. Actual damage or flooding	Damage/flooding

- B. Message format for reporting severe weather:

1. Time of occurrence
2. Exact location
3. Severe weather event from (A) above
4. Source of report if other than the reporting station

- C. Reporting procedure:

1. Call the NCS and use one of the five criteria to indicate a valid report.
2. NCS will indicate "GO AHEAD".
3. Transmit the report at longhand dictation speed using message format in (B) above, without repeating your call sign.
4. NCS will respond with a simple "ROGER".
5. Weather Service will also "ROGER".

Example:

Station calling: "WB9 ALPHA BRAVO CHARLIE HAIL"
NCS: "GO AHEAD"
Station calling: "AT 4:35, HWY 20 AND 36, NEAR WATERFORD,
RACINE COUNTY, 3/4 INCH HAIL"
NCS: "REPEAT THE TIME, PLEASE"
Station calling: "4:35"
NCS: "ROGER, NCS CLEAR"
Weather Service: "WEATHER SERVICE, ROGER"

TRANSMISSION IS COMPLETED !!!

- D. Be available for followup information if necessary, or as requested.

- E. Followup message:

1. Call the NCS, using the word "FOLLOWUP".
2. Start the message with:
"REFERENCE THE REPORT OF (event), OCCURRED AT (time)"
3. Follow with added or requested information.

- F. Be alert and note all information disseminated by the NCS or Weather Service operator.

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SINCE 1914 - OF, BY AND FOR THE RADIO AMATEUR



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SEVERE WEATHER OPERATIONS, 1989

With the coming of NEXRAD and its dramatic effect on amateur severe weather operations, this material is presented for review and for newcomers. It does not imply that present operations are inadequate in any way. Instead, its intent and purpose is to fine tune an already excellent operation. The coming of doppler radar represents a challenge and opportunity for amateur operations. The National Weather Service and state ARS leadership are well into a concerted effort to provide all support possible in this fine tuning process.

A Brief History

In 1967, Dave Theophilus, W9KWQ and Sherm Carr, W9NGT (who was state SEC at the time), with the approval of R. W. Harms, Meteorologist in Charge, National Weather Service, Milwaukee, began an effort to involve amateur radio in the newly implemented "SKYWARN" program. Dave, a staff meteorologist at the Milwaukee office, along with Bill Harms and guidance from the Severe Storms Forecast Center in Kansas City, developed the criteria, and Dave and Sherm worked out the procedures. By the spring of 1969, the procedures, format and criteria were finalized, and the ARS-coordinated severe weather operations became official.

Each year we review procedures, message format, and severe weather criteria to be ready for the upcoming severe weather season, and to reach those amateurs who perhaps are getting into severe weather operations for the first time. While these procedures are very simple and have been used essentially unchanged for some 24 years, it is like spring training for the pros; we all need the preseason training too.

This year, and the next, are important for several reasons:

1. In preparation for, and a major step toward doppler radar in Wisconsin, the National Weather Service Main Forecast and Warning Center is moving to a new location near Sullivan in Jefferson County, and should be operational in October, 1989. The new doppler radar should be operational in 1991.
2. With this dramatic development, amateur operations will need to become more efficient to match the speed and precision of this new weather surveillance tool.

3. Aware of the amateur's needs in this new era, the Weather Service has prepared an all new spotter training program which will be available to all operators very soon.
4. The doppler radar era will require more extensive coordination of all spotter networks, with uniform operating procedures throughout the state, even though at present, the operations in various areas are strikingly similar.
5. With weather service operations completely computerized, the turnaround time between a reported severe weather event and the issuance of a warning is less than one minute. Clearly, with this time frame, data acquisition time could very well become the limiting factor. As a consequence, and as one source of severe weather data, amateur circuits must be equally efficient, especially where liaison stations must relay from one circuit to another.
6. Concern has been voiced that the coming of doppler radar will make obsolete the amateur operations. Far from it. Amateurs will continue to play a key role in this new environment, although there may be a few minor changes in procedures.

Net Operations

The net control station is a key element in a successful operation. The NCS maintains a roster of checked-in stations and their locations, maintains a log of all reports meeting the severe weather criteria, maintains net discipline, logs all data emanating from the Weather Service, and makes sure the Weather Service operator copies all pertinent reports and data.

The Weather Service operator monitors, copies and acknowledges all reports meeting severe weather criteria, and as often as circumstances permit, issues radar summaries and other data and updates to provide all operators with "where and when to look" information.

Liaison stations are also key stations. They are vital links tying networks together for disseminating information, and to relay severe weather reports to the primary network. They operate in pairs. One relays severe weather data to the primary network; the other relays information from the primary network. The primary network is the system serving the Weather Service office. As with the NCS, good record-keeping is essential. Finally, the liaison station may be the screening station, to screen out those reports that are of no interest to the Weather Service.

Severe Weather Criteria

The Weather Service, with only occasional exceptions, is interested only in these severe weather events:

1. Tornado on the ground, causing damage
2. A rotating funnel cloud aloft
3. Winds, 55 mph or higher
4. Hail, one-half inch or larger
5. Actual damage or flooding

All amateurs should be aware that only reports of events meeting the five criteria items are ever actually delivered to the meteorologist. Anything else, although it may be acknowledged by the NCS, is simply ignored.

Severe Weather Message Format

The message format, in use for many years, permits transmission of even the most catastrophic weather event in from 30 seconds to one minute. In view of the very short turnaround time at the Weather Service, such messages must be as brief as possible. It consists of only three main elements, and under some circumstances, a fourth:

1. Time of occurrence
2. Exact location
3. The severe weather event itself, from the five items listed above
4. Source of information, if other than the reporting station, and verified as an actual occurrence.

The message elements are clear, but some clarification is useful:

1. The time of occurrence is important and should be established as accurately as possible. Where it is impossible to determine the time of occurrence, the message must state, "EXACT TIME NOT AVAILABLE".
2. The exact location must be given in geographical entities easily located on a map. In large cities, major streets or avenues are used. Obscure streets, mile markers, county and town roads are virtually useless. Distance and direction from the nearest easily located city or town is the best.

3. The severe weather event is just that -- no more. The fact that it is happening is important, not what it is doing, unless it is causing damage. It must be kept in mind that the amateur's role is to enhance the warning process. Time is wasted by wordy descriptions.
4. The fourth item, source of information if other than the reporting station, must be used with extreme caution. The reporting station is responsible for any data transmitted, and must be sure it is accurate.

Almost everyone has a scanner. What one hears on law enforcement channels must be screened very carefully. Where a squad reports an event, the procedure is easy, is usually accurate, and time and location can usually be determined. It must be remembered, however, that where a dispatcher is sending a squad to investigate a report of a touchdown or other event, the report is usually from the public, a notoriously unreliable source. The monitoring station must wait until the squad arrives on the scene and either verifies or discredits the report. Key words are "DAMAGE" or "INJURY". If these are verified, the report is probably valid. In any event, the time the squad is dispatched should be noted, to establish the approximate time of occurrence, in case the event is verified.

The Followup Message

The initial severe weather message must be as brief as possible, for obvious reasons. It does not allow lengthy descriptions of the event.

If there is additional information, or if requested by the Weather Service, a followup message can be sent after the Weather Service has initiated whatever action is indicated. Although it, too, must be brief, it can be a short narrative supplying the needed data.

The station simply calls with the word "FOLLOWUP".

One very important reminder: the followup message must be referenced to the original report clearly and accurately, to avoid confusion.

The Individual Spotter Station

No matter how complete the plans or how expert the leadership, no system can be successful without the individual participating stations. The major effort must be to provide them with proper training and information materials to enable them to get the job done.

The individual operator has a lot to keep in mind, and preparedness is the magic word:

1. National Weather Service forecasts will usually project the possibility of severe weather up to 12 hours prior to its arrival. On the other hand, severe weather can and often does, develop in a matter of hours, so the individual stations must be alert, and attempt to keep abreast of developments. There is a good logic to this. Aside from being ready to operate, it makes sense to be alerted ahead of time to regulate personal activities.

The Weather Service VHF broadcast stations are still the most reliable source of information. If this source is faulty, although it seldom is, no other source can be any better.

Where everyone is informed and alert, severe weather operations are almost self-starting, with a bare minimum of organizational traffic.

2. It is almost axiomatic that equipment always fails when it is needed the most. To defeat Murphy's Law takes some doing. The "every once in a while" intermittent antenna, the flakey mike cord, and many other minor failures, while merely annoying under normal conditions, can be very serious in a situation where reliable communications are essential in a life threatening emergency. Not much need be said of this. Everyone knows that reliability is crucial.
3. The Weather Service criteria for reportable events is quite clear, but has presented problems in the past, especially at night when visibility is almost non-existent.
 - a. The first, tornado on the ground, is easy in daylight. At night, the first indication is sometimes reports of severe damage. However, if the spotter is up to date on the storm's behavior, and an approximate ETA is available, detection may be easier.
 - b. Funnel cloud aloft is not easy. Even in daylight, it must be watched for a time, or it could be mistaken for a dense rain shaft. At night, the only visibility is from lightning flashes. Illumination in bursts of from one-tenth to four-tenths of a second is far too brief to detect rotation. However, most tornados and funnel clouds are accompanied by scud clouds - small, fragmentary, lighter colored clouds traveling around the perimeter at fairly low altitudes and at fairly high speeds.

Observed for some minutes, they will be in different locations with succeeding flashes, and can reveal rotation. In any event, they must be watched for a time, especially if radar shows a suspicious echo in that location.

- c. High winds are also tough unless the spotter has access to wind velocity instruments. The tension and atmosphere of urgency during severe weather creates a tendency among many observers to estimate high. Surface winds in excess of 40mph during fair weather rarely cause concern, yet when these same winds are experienced during a storm they are often unduly alarming, hence the high estimates.

The 55mph criteria was carefully chosen as that velocity which will begin to damage structures and trees. It is a reliable figure. The observer then, should look for some damage, however minor, to support a high winds report. On the other hand, if the observer is reasonably sure of the winds, with no other support, it should be reported, qualified with the word "ESTIMATED".

- d. Hail is relatively easy to assess. However, this criteria may be changed if the Weather Service feels it necessary. Small hail can occur in violent storms, and large hail can occur with some non-violent storms. Here the spotter must be alert to this change if it occurs.
 - e. The last, actual damage or flooding, poses no real problems. Damage is an immediate effect, while flooding can occur some time after the storm has diminished.
- 4. Most amateurs are aware, but some may not be, that many emergency government, law enforcement, county and municipal agencies routinely monitor amateur severe weather circuits because of the first-hand information available. The amateurs' image as a viable emergency communications resource can be either considerably enhanced, or degraded by what they hear.
 - 5. When severe weather must be reported, the message should be written first, and then transmitted at longhand dictation speed. This eliminates fishing for words and the message, or any part thereof, can be repeated verbatim. For the portables and mobiles, the message should be rehearsed and memorized for the same reasons.

6. Personal safety is important. There is adequate material on the best vantage points to observe from. Without a clear picture of the storm track and where it is at a given time, it is foolhardy to risk becoming a casualty in an operation the sole purpose of which is to prevent casualties.
7. The procedure, criteria and message format sheet should be kept handy at all times.
8. Finally, severe weather operations represents the amateur service at its finest. It is demanding, but extremely rewarding. The amateur is an integral part of a concentrated action with the Weather Service and all of the emergency and safety services, in conflict with nature in its most vicious mood. It is not for the glory hunters or the ego trippers. The responsibility is heavy, and stakes are high. We will either win big or lose big. There is no in-between. So, let's get to the fine tuning and we can get the job done.

73

Fred		Sherm
W9ZAG	and	W9NGT
SEC		Assistant SEC